Water Quality and Flow Monitoring Program
Benefits

Benefit	Example(s)/Descriptions
Informing citizens, council, and staff	
Policy review, initiation, and implementation	
Comprehensive Plan	State of the Island's Waters Report
Shoreline Master Program Plan	State of the Island's Waters Report
Strategic Planning & Resource Allocation	
Capital Improvement Plan	Seaborn Project
	Lynwood Center Outfall Project
	Springbrook Creek Enhancement and Culvert Replacement
	Wardwell Road Reconstruction and Drainage Improvement
Community Initiatives	Sole Source Aquifer Designation
Utility Plan Updates	General Sewer Plan
	Stormwater Management Program Plan
Building trust through city-citizen-community collaboration	
Citizen participation	WQFMP Demonstration and Volunteers
Collaborative solutions	Murden Cove Watershed Nutrient & Bacteria Reduction Project
	Springbrook Creek Enhancement and Culvert Replacement
Meeting regulatory requirements	
Clean Water Act	
Status & Trends of Waters of the State in City Jurisdiction	Status and trends monitoring
NPDES Stormwater Discharge Permit Requirements	2007_2012 permit
	2012_2013 permit
	2013_2018 permit
Prioritization of Waterbodies and/or Watersheds for Investigation	Field Screening Activities
Locating Illicit Discharges/Connections	Lower Madison Brien Bjune Stormwater Outfall
	Manzanita Creek
	Springbrook Creek
	Issei Creek
	Fletcher Bay
	Lift Station Overflow into Ravine Creek
Required Monitoring	Sinclair & Dyes Inlets Fecal Coliform TMDL
	State of the Island's Waters Report

Education & Outreach/Public Participation	Water Quality Monitoring Demonstrations
	Volunteers, School Visits, Public Presentation
Reducing regulatory burden	
Total Maximum Daily Load (TMDL) Clean-up Plans	Sinclair & Dyes Inlets Fecal Coliform TMDL
Challenging state assessments	Sinclair & Dyes Inlets Fecal Coliform TMDL
De-listing State-listed waterbodies	De-listing Policy
Facilitating grant opportunities for capital & open space improvements	
Utilities	Lynwood Center Outfall Project
	Springbrook Creek Enhancement and Culvert Replacement
	Wardwell Road Reconstruction and Drainage Improvement
Roads	Wardwell Road Reconstruction and Drainage Improvement
Parks & Open Space	Waterfront Park
Measuring resource and utility management effectiveness	
Land use impacts	Shoreline Master Program Plan-Shoreline Monitoring
	Stream Benthos and Hydrologic Data Assessment
Capital Retrofit, Low Impact Development, Water Quality Improvements	Stormwater Reftrofit
	Low Impact Development
Stormwater Best Management Practices	Operations and Maintenance Facility Stormwater Pond
Leveraging outside resources	
Kitsap Public Health District - Pollution Identification and Correction	Port Orchard Passage Shellfish Recovery Project
	EPA Shellfish Restoration and Protection Project
	Fletcher Bay
	Murden Creek Watershed Nutrient Reduction Project
Bainbridge Island Land Trust	Springbrook Creek Enhancement and Culvert Replacement
Sonji-Sakai Intermediate School/Islandwood	Murden Cove Watershed Nutrient & Bacteria Reduction Project

In July 2012, the WQFMP released the 1st Edition *State of the Island's Waters* report. This report compiles stormwater, freshwater and nearshore marine water quality data gathered by the WQFMP since 2007 through Water Year (WY)2011. It also reviews state assessments by the Department of Ecology and Department of Health, where appropriate, such as Department of Ecology's water quality assessments and shoreline and shellfish growing area surveys. The program is currently assessing additional water quality and habitat data gathered through WY2015 for a tentative release of a second edition of the report in 2016.

The Seaborn Project replaced a deteriorated 24-inch culvert along the lower reach of Blakely Falls Creek with an energy dissipator manhole and 36-inch culvert to restore and protect an endangered property. However, this necessary modification resulted in the loss of localized fish habitat and required mitigation to include the establishment of a fish passage culvert and 300 feet of stream enhancement at alternative sites. WQFMP water quality data and historical fish habitat data were used to select viable mitigation sites.

The Lynwood Center Outfall Project will replace deteriorating stormwater pipe and catch basins that convey stormwater runoff from the Lynwood Center Commercial Center and install a tide valve on the Pleasant Beach Cove outfall orifice to prevent backwash of sediment into the system and the accumulation of beach mammal food waste and fecal droppings. This project is partially funded by a $188,250-Department of Ecology Statewide Stormwater Grant obtained using water quality data collected through the WQFMP and the Stormwater Management Program's Illicit Discharge Detection and Elimination Program from Pleasant Beach Cove and adjacent shoreline drainages.

The Springbrook Creek Evaluation and Feasibility Project is a Bainbridge Island Land Trust-led partnership project (including the City) to complete a watershed scale assessment of the drainage basin to identify and develop conceptual designs for future salmon habitat improvements and/or protection projects to include removing fish passage barriers (culvert replacements) and enhancing riparian habitats. The evaluation of existing watershed and stream data, collection of new stream data, and a geomorphic and hydrologic assessment will help guide project partners in understanding the dynamics of the stream. Current WQFMP data were used to secure over $62,000 of salmon recovery funding for this project, and will be used to apply for $450,000 in 2017 grant funding for subsequent restoration and culver replacement projects.

WQFMP data about downstream sediment and water quality and stream macroinvertebrate health were used in pursuit of $346,000 in grant frunding for Wardwell Road roadway reconstruction and drainage improvements.

Island citizens utilized long-term continuous flow data from Springbrook Creek as part of the Sole Source Aquifer Designation application process. This designation was approved and provides additional protection of the Island's sole source of drinking water.

Program rain gauges provided rainfall data in support of the City's sanitary sewer system General Sewer Plan interflow study, resulting in over $7,000 in project savings.

The National Pollutant Discharge Elimination System Permit/Municipal Stormwater Discharge Permit requires annual review and updates to the City's Stormwater Management Program Plan. WQFMP activities in support of permit requirements, particularly in support of sections S5, S7, and S8, are highlighted in the activities section of the Stormwater Management Program Plan.

Periodically, the WQFMP hosts a water quality and flow monitoring demonstration at one of the program's monitoring sites to exhibit and demonstrate the program's monitoring equipment and methods, to highlight findings in the subject watershed/stream, and to solicit citizen volunteers. The City actively solicits and utilizes citizen volunteers to assist with many WQFMP activities to include monthly water quality sampling and annual benthic macroinvertebrate sampling.

Shortly after the City released the recent *State of the Island's Waters* report (July, 2012) which highlighted the specific water and habitat quality challenges in the Murden Cove Watershed, several outside agencies and community organizations individually approached the City with a desire to restore water quality and aquatic habitat in Murden Creek and Murden Cove. Thus, the Murden Cove Watershed Nutrient and Bacteria Reduction Project Partnership was born. This project is a collaborative effort, bringing together the collective skills, expertise, and funding of multiple agencies, community organizations, and citizen volunteers to include Sonji-Sakai Intermediate School/Islandwood ($30,000-3M Eco Grant), the Bainbridge Island Watershed Council, Farbank/Sage, the City, the Kitsap Public Health District ($250,000-DOE National Estuary Program Grant), and the Kitsap Conservation District.

To assess Island-wide surface water conditions and prioritize watersheds and waterbodies for further investigation, the City conducts long-term status and trends monitoring in fifteen streams and one stormwater outfall to include monthly bacteria samples and in-situ physical chemistry such as pH, temperature, and dissolved oxygen. Additional parameters such as nutrients and metals are sampled on a periodic basis as well. Lastly, annual benthic macroinvertebrate samples are collected in seven of those streams.

Section S5.C.3 in earlier versions of the City's stormwater discharge permit specifically required field assessment activities in order that receiving waters be prioritized for visual inspection with field assessments on at least one high priority water body each year. In the current edition of the permit, this section restates this requirement as field screening activities. All permittees shall complete field screening for at least 40% of the MS4 (municipale separate storm sewer system) no later than December 31, 2017, and on average 12% each year thereafter. The WQFMP monitoring activities fulfill a significant portion of those field screening activities.

WQFMP monthly status and trends montioring at the Lower Madison Brien Bjune Stormwater Outfall revealed periodic elevations in fecal coliform bacteria concentrations. This generated an Illicit Discharge Detection and Elimination (IDDE) investigation of the stormwater system (IDDE Case #2011-17). Continuous flow monitoring data were used to characterize flow patterns in the system as part of this investigation. The monthly physiochem data such as turbidity and pH were used to monitor sediment and erosion control and concrete processes throughout the Winslow Way Construction Project.

WQFMP monthly status and trends montioring in Manzanita Creek revealed consistently elevated fecal coliform bacteria concentrations above state criteria. This generated an Illicit Discharge Detection and Elimination (IDDE) investigation of the sub-basin (IDDE Case #2011-13).

WQFMP monthly status and trends montioring in Springbrook Creek revealed continued elevated fecal coliform bacteria concentrations consistent with the 2004 Department of Ecology Water Quality Assessment and 303(d) listing. This generated an Illicit Discharge Detection and Elimination (IDDE) investigation of the sub-basin (IDDE Case #2011-15).

WQFMP monthly status and trends montioring in Issei Creek revealed elevated fecal coliform bacteria, nutrient, and metals concentrations above state standards and criteria. This generated an Illicit Discharge Detection and Elimination (IDDE) investigation of the sub-basin (IDDE Case #2012-48).

In 2014, the City partnered with the Kitsap Public Health District to conduct focused pollution identification and correction (PIC) work in the Fletcher Bay Watershed, specifically within the two primary drainage basins, Springbrook Creek and Issei Creek, and shorelines around Fletcher Bay. This also fulfills requirements of both the permit and the Sinclair and Dyes Inlets Fecal Coliform Total Maximum Daily Load clean up plan which specifies focused work around the Department of Health marine monitoring station #457 adjacent to the mouth of Fletcher Bay which is designated as "threatened" by the Department of Health. WQFMP data for Springbrook Creek, Issei Creek, and Fletcher Bay set the stage for, and continues to inform, the PIC project.

In 2014, a City sanitary sewer lift station failed and overflowed into the stormwater drainage system and entered Ravine Creek. WQFMP continuous flow monitoring on Ravine Creek downstream of the lift station provided a measurement-based estimate of the amount of sewage that reached the creek, part of a notification requirement of both the sanitary sewer plant discharge permit and the stormwater discharge permit. WQFMP stream sampling data provided not only background bacteria levels, but measured the impact to bacterial concentration over the weeks following the spill and, ultimately, confirmed for the Kitsap Public Health District when the stream again reached background levels, allowing for the lifting of the beach closure and contact restrictions in Eagle Harbor.

During the drafting of the Sinclair and Dyes Inlets Fecal Coliform Bacteria Total Maximum Daily Load cleanup plan, the City negotiated an agreement with the Department of Ecology to provide current water quality monitoring data from Pleasant Beach Cove demonstrating water quality improvements and standards attainment since the 2006 Fort Ward Wastewater Treatement Plant Extension along Pleasant Beach and around the cove. These current data demonstrated standards attainment in the cove and eliminated proposed wasteload reductions in two nearshore areas.

The WQFMP provides a significant portion of the education and outreach and public participation required by the City's stormwater discharge permit. Citizen volunteers have contributed over 1000 hours of water quality monitoring and stewardship since 2010. Additionally, the WQFMP presents data and technical assistance regarding pollution prevention at schools, local environmental conferences, and other public venues such as Rotary meetings. Recently stormwater effluent water quality data from the Lower Madison Brien Bjune stormwater outfall was used to inform council members, city staff, and citizens considering plans for stormwater treatment as part of the improvement at Waterfront Park.

Every two years the Department of Ecology conducts a water quality assessment on all available water quality monitoring data that are submitted in response to a "call for data." As part of this assessment, waters (or sediment, tissue, or habitat) may be classified as "of Concern" if periodic exceedances of state criteria are observed or "impaired" if frequent exceedances of state criteria are observed. This assessment is conducted in accordance with Department of Ecology Water Quality Policy #1-11, Chapter 1 - *Assessment of Water Quality for the Clean Water Act Section 303(d) and 305(b) Integrated Report* . In order to challenge these assessments, municipalities must have data deemed "credible" in accordance with Department of Ecology Water Quality Policy #1-11, Chapter 2 - *Ensuring Credible Data for Water Quality Management* . Data gathered through the WQFMP, which operates under a state-approved monitoring plan and quality assurance project plan, are considered credible. Once a waterbody is listed "impaired," it requires credible data demonstrating standards attainment in the waterbody in order to "de-list" that waterbody.

Recent stormwater effluent water quality data from the Lower Madison Brien Bjune stormwater outfall was used to inform council members, city staff, and citizens considering plans for stormwater treatment as part of the improvement at Waterfront Park.

State regulation requires the City to monitor the effectiveness of its Shoreline Master Program Plan in ensuring "no net loss" of shoreline ecological function. Shortly after the City's Shoreline Master Program Update was adopted in 2014, the City began an effort to create a shoreline monitoring approach. The WQFMP monitoring plan addresses several ecological assessment tools such as bioassessments, habitat assessments, submerged aquatic vegetation surveys, riparian assessments, and water and sediment quality sampling. Current WQFMP nearshore sediment and water quality data will inform this effort.

In 2015, the WQFMP entered into an interlocal agreement with King County to conduct an in-depth assessment of the City's continuous flow and stream benthic macroinvertebrate monitoring data using metrics researched and developed over the last 15 years by King County's Department of Natural Resources and Parks – Water and Land Resources Division. This project will compare flow metric results to land use/land cover within the contributing drainage basin and to stream benthic macroinvertebrate data to assess for flow alteration impacts to the stream benthos community. This methodology is widely used in the Puget Lowlands, and therefore allows for comparison of the City's data to the rest of the Puget Sound Region. Further, this approach credibly identifies impacts from specific land uses or activities in Island watersheds, allowing the City to favorably compete for water and/or habitat quality-related grant funding for capital projects, utility improvements, and planning assessments (including habitat restoration, stormwater drainage system retrofits and Low Impact Development)

In 2015, the City is pursuing a grant to complete a stormwater drainage system retrofit study to identify retrofit needs and opportunities within the downtown urban core. Retrofit will include replacing defective or aged infrastructure and incorporating low impact development components within the system to provide pollution treatment and reduce runoff. Using current water quality and flow monitoring data as a baseline, monitoring the system during and after the retrofit and improvement process can demonstrate the effectiveness of the City's improvements. Demonstrating that the City has credibly defined its system and effectively selected improvements can improve the City's competetiveness in obtaining grant funding for continued retrofit and improvements.

The City's current National Pollutant Discharge Elimination System Municipal Stormwater Discharge Permit requires the City to develop and adopt ordinance recognizing and requiring Low Impact Development (LID) methods as the commonly-used approach to site development by December 31, 2016. Using current water quality and flow monitoring data as a baseline, continued water quality and habitat quality monitoring can demonstrate the effectiveness of LID.

The WQFMP conducted status and trends monitoring and targeted storm event monitoring at the outlet from the City's Operations & Maintenance Stormwater Pond as part of the program's pilot study, providing effectiveness monitoring of the Hidden Cove Operations and Maintenance Shop pollution prevention best management practices.

The Port Orchard Passage Shellfish Recovery Project (joint effort between the City and the Kitsap Public Health District in 2011-2012) was partially funded by a $100,000-Centennial Clean Water Fund Grant. A portion of these monies were dedicated to a survey of two sections of Bainbridge Island western shoreline where commercial shellfish harvest areas are closed to harvest due to elevated bacteria in shoreline drainages. In addition to sampling and assessment of shoreline drainages, these monies also provided property owners with a septic system inspection, education and technical assistance on the proper care and operation of their system, and financial assistance through the Craft 3 septic loan program for any repair or replacement needed.

The 2012 - 2014 EPA Shellfish Restoration and Protection Project (joint effort between the City and the Kitsap Public Health District) was partially funded by a $997,066-EPA Region 10 Puget Sound Watershed Management Assistance Program Grant. A portion of these monies were dedicated to a survey over a large portion of Bainbridge Island shorelines, particularly along the north, east, and southern shorelines. In addition to sampling and assessment of shoreline drainages, these monies also provided property owners with a septic system inspection, education and technical assistance on the proper care and operation of their system, and financial assistance through the Craft 3 septic loan program for any repair or replacement needed.

Attachment 1. Permit Requirements Fulfilled by WQFMP

Permit Condition Number	Requirement	Comments
S4 - Compliance with Standards		
S4.C	The Permittee shall reduce the discharge of pollutants to the maximum extent practicable.	
S4.D	The Permittee shall use all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the state of Washington.	
S4.F.3.iii	...A description of the potential monitoring or other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.	In response to identified discharges of toxicants to waters of the state which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria.
S5 - Stormwater Management Program (SWMP)		
S5.A.4	Notwithstanding the schedules for implementation of the SWMP components contained in this permit, Permittees that are already implementing some or all of the SWMP components in this section shall continue implementation of those components of their SWMP.	WQFMP is a section of our SWMP. Any current activities must continue.
S5.C.2	The SWMP shall include ongoing opportunities for public involvement through advisory councils, watershed committees, participation in developing rate-structures, stewardship programs, environmental activities or other similar activities.	Watershed Council; Volunteers assist with WQ Sampling (macroinvertebrates, DO, temp, pH), Outfall Recon Inventory
S5.C.3	Illicit Discharge Detection and Elimination	Source identification monitoring, status and trends monitoring
S5.C.3.c.ii	Receiving waters shall be prioritized for visual inspection no later than three years from the effective date of the Permit, with field assessments of three high priority water bodies made no later than four years from the effective date of this Permit. Field assessments on at least one high priority water body shall be made each year thereafter.	Based upon historical WQ issues, previous sampling
S7 - Total Maximum Daily Load (TMDL) Requirements		
S7.C	For TMDLs that are approved by EPA after this Permit is issued, Ecology may establish TMDL related permit requirements through the future permit modification if Ecology determines implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and shall be implemented during the term of this Permit or when this Permit is reissued.	TMDLs in review process for Sinclair-Dyes Inlet and Liberty Bay due to bacteria loading in Port Orchard Passage, but so far Bainbridge Island has not been identified as a significant source of bacteria loading to Port Orchard Passage. However, this is a previsional decision that could be reversed at any time, especially considering recent shellfish harvesting area downgrades. WQFMP Final Monitoring Plan contains a Sampling and Analysis Plan as well as a Department of Ecology-approved Quality Assurance Project Plan if this should become an issue. Continued monitoring, IDDE, and shoreline surveys will insure that BI is not (and will not) be a significant source of bacteria in Port Orchard Passage .
S8 - Monitoring		
S8.C.1.a	Cities having a population greater than 10,000 and counties having a population greater than 25,000 shall identify sites for long-term stormwater monitoring. Adequate sites will be those completely mapped as required in S5.C.3.a. and be suitable for permanent installation and operation of flow-weighted composite sampling equipment.	WQFMP's Site Evaluation Report does just this. Further, we have infrastructure in place to install sampling equipment.
S8.C.1.b.i	Each city, town and county shall prepare to conduct monitoring to determine the effectiveness of the Permittee's SWMP at controlling stormwater-related problems that are directly addressed by actions in the SWMP. This component of the monitoring program shall be designed to answer the following types of questions: How effective is a targeted action or narrow suite of actions? Is the SWMP achieving a targeted environmental outcome?	i.e., do our receiving waters meet state standards? Must monitor to be able to answer that question.
S8.C.1.b.ii	No later than December 31, 2010, each city, town and county shall identify at least two suitable questions and select sites where monitoring will be conducted. This monitoring shall include, at a minimum, plans for stormwater, sediment or receiving water monitoring of physical, chemical and/or biological characteristics. This monitoring may also include data collection and analysis of other measures of program effectiveness, problem identification and characterizing discharges for planning purposes.	WQFMP is structured to do all of this.

WQFMP Support of NPDES Permit Requirements

Section	WQFMP Component/Task/Activity	PSA Task #	Current Permit (9/1/12 - 7/31/13) Requirement	New Permit (8/1/13 - 7/31/18) Requirement
S4 - Compliance with Standards				
S4.A	Identifies exceedances of standards from stormwater impacts -- Routine Stormwater/Freshwater/Marine bio/chem sampling -- Freshwater/Marine macroinvertebrate sampling/BIBI -- Targeted Storm Event Sampling -- Sediment Sampling -- Flow Station Maintenance and Downloads -- Weather Station Maintenance -- Weather Station Downloads -- Data Analysis and Reporting -- WQFMP and Flowlink Database Upload & Management -- Field Operations Manual - SOP Updates -- Manual Instream Flow (ungaged monitored streams for load calculations) -- EPA Shellfish Recovery Project (w/KPHD) -- Murden Cove Watershed Nutrient Reduction Project (w/KPHD and Sakai Intermediate School)	--- 3.0 2.0, 3.0 3.0 2.0 2.0 --- 4.0 4.0 2.0 --- --- ---	*In accordance with RCW 90.48.520, the discharge of toxicants to waters of the state of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone critieria is prohibited. The required response to such violations is defined in section S4.F...*	*In accordance with RCW 90.48.520, the discharge of toxicants to waters of the state of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone critieria is prohibited. The required response to such discharges is defined in section S4.F...*
S4.F - Notification of Noncompliance			*A Permittee remains in compliance with S4. despite any discharges prohibited by S4.A. or S4.B., when the Permittee undertakes the following* ***response toward longterm water quality improvement:***	*A Permittee remains in compliance with S4 despite any discharges prohibited by S4.A or S4.B, when the Permittee undertakes the following* ***response toward longterm water quality improvement:***
S4.F.1	-- (see S4.A above)		*A Permittee shall notify Ecology in writing within 30 days of becoming aware,* ***based on credible site-specific information*** *, that a discharge from the municipal separate storm sewer owned or operated by the Permittee is causing or contributing to* ***a known or likely violation of Water Quality Standards in the receiving water*** *. Written notification provided under this subsection shall, at a minimum,* ***identify the source of the site-specific information, describe the nature and extent of the known or likely violation in the receiving water*** *, and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For ongoing or continuing violations, a single written notification to Ecology will fulfill this requirement.*	*A Permittee shall notify Ecology in writing within 30 days of becoming aware,* ***based on credible site-specific information*** *, that a discharge from the MS4 owned or operated by the Permittee is causing or contributing to* ***a known or likely violation of Water Quality Standards in the receiving water*** *. Written notification provided under this subsection shall, at a minimum,* ***identify the source of the site-specific information, describe the nature and extent of the known or likely violation in the receiving water*** *, and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For ongoing or continuing violations, a single written notification to Ecology will fulfill this requirement.*
S4.F.2	-- (see S4.A above)		*In the event that Ecology determines, based on a notification provided under S4.F.1. or through any other means, that a discharge from a municipal separate storm sewer owned or operated by the Permittee is causing or contributing to a violation of Water Quality Standards in a receiving water, Ecology will notify the Permittee in writing that* ***an adaptive management response outlined in S4.F.3. below is required*** *, unless Ecology also determines that (a) the violation of Water Quality Standards is already being addressed by a Total Maximum Daily Load or other enforceable water quality cleanup plan; or (b) Ecology concludes the violation will be eliminated through implementation of other permit requirements.*	*In the event that Ecology determines, based on a notification provided under S4.F.1. or through any other means, that a discharge from a MS4 owned or operated by the Permittee is causing or contributing to a violation of Water Quality Standards in a receiving water, Ecology will notify the Permittee in writing that* ***an adaptive management response outlined in S4.F.3. below is required...***
S4.F.3.a - Adaptive Management Response			*Within 60 days of receiving a notification under S4.F.2., or by an alternative date established by Ecology, the Permittee shall review its Stormwater Management Program and submit a report to Ecology. The report shall include:*	*Within 60 days of receiving a notification under S4.F.2., or by an alternative date established by Ecology, the Permittee shall review its Stormwater Management Program (SWMP) and submit a report to Ecology. The report shall include:*
S4.F.3.a.iii.	Designs/implements BMP effectiveness monitoring -- Final Monitoring Plan: Site Evaluation Report, Sampling and Analysis Plan, Quality Assurance Project Plan	---	*A description of the* ***potential monitoring and other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.***	*A description of the* ***potential monitoring and other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.***
S5 - Stormwater Management Program for Cities, Towns, and Counties				
S5.A.5.b. - Interdepartmental Coordination	Provides qualifying rain event alerts to Engineering and O&M -- Weather Station Maintenance -- Weather Station Downloads	 2.0 ---	*The SWMP should include* ***coordination mechanisms among departments within each jurisdiction to eliminate barriers to compliance*** *with the terms of this permit.*	*The SWMP shall include* ***coordination mechanisms among departments within each jurisdiction to eliminate barriers to compliance*** *with the terms of this permit.*
S5.C.1 - Public Education and Outreach	-- Data Analysis and Reporting (*State of the Island's Waters*) -- Water Quality Monitoring Demo Day -- Public Works Week	4.0 5.0 ---	*The [Stormwater Management Program] shall include* ***an education program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the Permittee. The goal of the education program is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.***	*The [Stormwater Management Program] shall include* ***an education and outreach program designed to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts and encourage the public to participate in stewardship activities.***
S5.C.1.b	-- Volunteer Training and Coordination (includes Bainbridge Island Watershed Council, Bainbridge Schools, etc.)	3.0, 5.0	(see S5.C.2 below)	*Each permittee* ***shall create stewardship opportunities and/or partner with existing organizations to encourage residents to participate in activities such as stream teams, storm drain marking, volunteer monitoring, riparian plantings and education activities.***
S5.C.2 - Public Involvement and Participation	-- Volunteer Training and Coordination (includes Bainbridge Island Watershed Council, Bainbridge Schools, etc.)	3.0, 5.0	*The [Stormwater Management Program]* ***shall include ongoing opportunities for public involvement through advisory councils, watershed committees, participation in developing rate-structures, stewardship programs, environmental activities or other similar activities.***	*The [Stormwater Management Program]* ***shall include ongoing opportunities for public involvement through advisory councils, public hearings, watershed committees, participation in developing rate-structures or other similar activities.***
S5.C.3 - Illicit Discharge Detection and Elimination	Identifies illicit discharges and connections -- Routine Stormwater/Freshwater/Marine bio/chem sampling -- Freshwater/Marine macroinvertebrate sampling/BIBI -- Targeted Storm Event Sampling -- Sediment Sampling -- Flow Station Maintenance and Downloads -- Weather Station Maintenance -- Weather Station Downloads -- Data Analysis and Reporting -- WQFMP and Flowlink Database Upload & Management -- Field Operations Manual - SOP Updates -- Manual Instream Flow (ungaged monitored streams for load calculations) -- EPA Shellfish Recovery Project (w/KPHD) -- Murden Cove Watershed Nutrient Reduction Project (w/KPHD and Sakai Intermediate School)	 --- 3.0 2.0, 3.0 3.0 2.0 2.0 --- 4.0 4.0 2.0 --- --- ---	*The [Stormwater Management Program] shall include* ***an ongoing program to detect and remove illicit connections and discharges*** *as defined in 40 CFR 122.26(b)(2), including any spills not under the purview of another responding authority, into the municipal separate storm sewers owned or operated by the Permittee.*	*The [Stormwater Management Program] shall include an ongoing program designed to prevent,* ***detect, characterize, trace*** *and eliminate illicit connections and illicit discharges into the MS4.*
S5.C.3.c.	-- (see S5.C.3 above)		*Each Permittee shall implement an* ***ongoing program to detect and address non-stormwater discharges, including spills, and illicit connections*** *into the Permittee's*	*Each Permittee shall implement an* ***ongoing program designed to detect and identify non-stormwater discharges and illicit connections*** *into the Permittee's MS4....The*

			municpal separate storm sewer system….and shall include…	*program shall include…*
S5.C.3.c.i	-- (see S5.C.3 above)		***Procedures for locating priority areas likely to have illicit discharges….***	*All Permittees….* ***shall complete field screening for at least 40% of the MS4 no later than December 31, 2017, and on average 12% each year thereafter*** .
S5.C.3.c.ii.	-- (see S5.C.3 above)		***Field assess at least one high priority water body each year in accordance with the requirements of this section.***	(moved to S5.C.3.c.i above)
S5.C.3.e (current) /S5.C.3.f (new) - Record Keeping				*Recordkeeping: Permittees shall track and maintain records of the activities conducted to meet the requirements of this section.*
	-- WR Program e-file cleanup/restructure/index/archive	---		
	-- WQFMP and Flowlink Database Upload & Management	4.0		
S5.C.5 - Pollution Prevention and Operation and Maintenance for Municipal Operations				
S5.C.5.c - O&M Stormwater Facility Inspections			*Spot checks of potentially damaged permanent treatment and flow control facilities (other than catch basins)* ***after major (greater than 24-hour-10-year recurrence interval rainfall) storm events*** .	*Spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities* ***after major storm events (24 hour storm event with a 10 year or greater recurrence interval)*** .
	Provides qualifying rain event alerts			
	-- Weather Station Maintenance	2.0		
	-- Weather Station Downloads	---		
S7 - Compliance with Total Maximum Daily Load Requirements				
S7.A.	-- Final Monitoring Plan: Site Evaluation Report, Sampling and Analysis Plan, Quality Assurance Project Plan	---		***For applicable TMDLs listed in Appendix 2, affected Permittees shall comply with the specific requirements identified in Appendix 2 . Each Permittee shall keep records of all actions required by this Permit that are relevant to applicable TMDLs within their jurisdiction*** *. The status of the TMDL implementation shall be included as part of the annual report submitted to Ecology. Each annual report shall include a summary of relevant SWMP and Appendix 2 activities conducted in the TMDL area to address the applicable TMDL parameter(s).*
	-- WR Program e-file cleanup/restructure/index/archive	---		
	-- WQFMP and Flowlink Database Upload & Management	4.0		
S7.C.	Conducts any required monitoring and informs TMDL development		*For TMDLs that are approved by EPA after this Permit is issued, Ecology may establish TMDL related permit requirements through future permit modification if Ecology determines implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and shall be implemented during the term of this Permit or when this Permit is reissued.* ***Permittees are encouraged to participate in development of TMDLs within their jurisdiction and to begin implementation.***	*For TMDLs that are approved by EPA after this Permit is issued, Ecology may establish TMDL related permit requirements through future permit modification if Ecology determines implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and shall be implemented during the term of this Permit or when this Permit is reissued.* ***Permittees are encouraged to participate in development of TMDLs within their jurisdiction and to begin implementation.***
	-- (see S5.C.3 above)			
S8 - Monitoring (current)				
S8 - Monitoring and Assessment (new)				
	Conducts any required monitoring		*Any* ***sampling or testing required for characterizing illicit discharges pursuant to section S5.C.3.*** *or S6.D.3. of this Permit.*	Regional Stormwater Monitoring Program (RSMP) - Pay In vs. Opt Out
	-- (see S5.C.3 above)	---		
S9 - Reporting Requirements				
S9.A	Reports on required monitoring or studies		*No later than March 31, 2013, all Permittees shall submit an annual report on an electronic form provided by Ecology.*	*No later than March 31 of each year beginning in 2015, each Permittee shall submit an annual report.*
	-- Data Analysis and Reporting	4.0		
S9.C	-- GIS Development and Program Support	---	*Each Permittee is required to keep all records related to this permit and the SWMP for at least five years.*	*Each Permittee shall make all records related to this permit and the Permittee's SWMP available to the public.*
	-- Website Management	---		
	-- Requests for information (All sources, City staff, Council, consultants, general public, etc.)	---		
S9.D	-- (see S9.C above)		*Each Permittee shall make all records related to this permit and the Permittee's SWMP available to the public at reasonable times during business hours.*	(moved to S9.C above)
G9 - Monitoring				
G9.A. - Representative Sampling			*Samples and measurements taken to meet the requirements of the Permit shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.*	*Samples and measurements taken to meet the requirements of this Permit shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.*
	-- Final Monitoring Plan: Site Evaluation Report, Sampling and Analysis Plan, Quality Assurance Project Plan	---		
G9.B. - Records Retention			*The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by the Permit, and records of all data used to complete the application for this permit.*	*The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this permit...*
	-- WR Program e-file cleanup/restructure/index/archive	---		
	-- WQFMP and Flowlink Database Upload & Management	4.0		
	-- Field Operations Manual - SOP Updates	2.0		
	-- Equipment Inventory/Maintenance	2.0, 3.0		

WQFMP Support of NPDES Stormwater Permit Requirements
(8/1/13 - 7/31/18)

Permit Section	WQFMP Component/Task/Activity	Requirement
S4 - Compliance with Standards		
S4.A	Identifies exceedances of standards from stormwater impacts -- Stormwater/Freshwater/Marine bio/chem sampling (Status & Trends) -- Freshwater macroinvertebrate sampling (Status & Trends) -- Stream/Nearshore Targeted Storm Event Sampling -- Stream/Nearshore Sediment Sampling -- Flow Station Maintenance and Downloads -- Weather Station Maintenance and Downloads -- Data Analysis and Reporting -- WQFMP and Flowlink Database Upload & Management -- Field Operations Manual - SOP Updates -- Manual Instream Flow (ungaged wq-monitored streams for load calculations)	*In accordance with RCW 90.48.520, the discharge of toxicants to waters of the state of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone critieria is prohibited. The required response to such discharges is defined in section S4.F...*
S4.C	-- (see S4.A above)	*The Permittee shall reduce the discharge of pollutants to the maximum extent practicable (MEP).*
S4.D	-- (see S4.A above)	*The Permittee shall use all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the state of Washington.*
S4.F - Notification of Noncompliance		*A Permittee remains in compliance with S4 despite any discharges prohibited by S4.A or S4.B, when the Permittee undertakes the following* ***response toward longterm water quality improvement:***
S4.F.1	-- (see S4.A above)	*A Permittee shall notify Ecology in writing within 30 days of becoming aware,* ***based on credible site-specific information*** *, that a discharge from the MS4 owned or operated by the Permittee is causing or contributing to* ***a known or likely violation of Water Quality Standards in the receiving water*** *. Written notification provided under this subsection shall, at a minimum,* ***identify the source of the site-specific information, describe the nature and extent of the known or likely violation in the receiving water*** *, and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For ongoing or continuing violations, a single written notification to Ecology will fulfill this requirement.*
S4.F.2	-- (see S4.A above)	*In the event that Ecology determines, based on a notification provided under S4.F.1. or through any other means, that a discharge from a MS4 owned or operated by the Permittee is causing or contributing to a violation of Water Quality Standards in a receiving water, Ecology will notify the Permittee in writing that* ***an adaptive management response outlined in S4.F.3. below is required...***
S4.F.3.a - Adaptive Management Response		*Within 60 days of receiving a notification under S4.F.2., or by an alternative date established by Ecology, the Permittee shall review its Stormwater Management Program (SWMP) and submit a report to Ecology. The report shall include:*
S4.F.3.a.iii.	Designs/implements BMP effectiveness monitoring -- Final Monitoring Plan Review & Update: Site Evaluation Report, Sampling and Analysis Plan, Quality Assurance Project Plan	*A description of the* ***potential monitoring and other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.***
S5 - Stormwater Management Program for Cities, Towns, and Counties		
S5.A.5.b. - Interdepartmental Coordination	Provides qualifying rain event alerts to Engineering and O&M -- Weather Station Maintenance and Downloads Provides data to obain grant funding for water quality-based capital improvement -- (see S4.A above)	*The SWMP shall include* ***coordination mechanisms among departments within each jurisdiction to eliminate barriers to compliance*** *with the terms of this permit.*
S5.C.1 - Public Education and Outreach	-- Data Analysis and Reporting (*State of the Island's Waters*) -- Water Quality Monitoring Demo Day -- Public Works Week	*The [Stormwater Management Program] shall include* ***an education and outreach program designed to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts and encourage the public to participate in stewardship activities.***
S5.C.1.b	-- Volunteer Training and Coordination (includes Bainbridge Island Watershed Council, Bainbridge Schools, etc.) -- Use of volunteers to support stream monitoring and data assessment	*Each permittee* ***shall create stewardship opportunities and/or partner with existing organizations to encourage residents to participate in activities such as stream teams, storm drain marking, volunteer monitoring, riparian plantings and education activities.***
S5.C.3 - Illicit Discharge Detection and Elimination	Identifies illicit discharges and connections -- (see S4.A above)	*The [Stormwater Management Program] shall include an ongoing program designed to prevent,* ***detect, characterize, trace*** *and eliminate illicit connections and illicit discharges into the MS4.*
S5.C.3.c.	-- (see S4.A above)	*Each Permittee shall implement an* ***ongoing program designed to detect and identify non-stormwater discharges and illicit connections*** *into the Permittee's MS4. The program shall include…*
S5.C.3.c.i	-- (see S4.A above)	*All Permittees….* ***shall complete field screening for at least 40% of the MS4 no later than December 31, 2017, and on average 12% each year thereafter*** *.*
S5.C.3.d.i.	-- (see S4.A above)	*Procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges*

	found by or reported to the Permitte.
S5.C.3.d.i.i. -- (see S4.A above)	*Procedures for tracing the source of an illicit discharge…*
S5.C.3.f - Record Keeping -- WQFMP and Flowlink Database Upload & Management	*Recordkeeping: Permittees shall track and maintain records of the activities conducted to meet the requirements of this section.*
S5.C.5 - Pollution Prevention and Operation and Maintenance for Municipal Operations	
S5.C.5.c - O&M Stormwater Facility Inspections Provides qualifying rain event alerts -- Weather Station Maintenance and Downloads	*Spot checks of potentially damaged permanent stormwater treatment and flow control BMPs/facilities* ***after major storm events (24 hour storm event with a 10 year or greater recurrence interval)*** .
S7 - Compliance with Total Maximum Daily Load Requirements	
S7.A. -- Final Monitoring Plan Review & Update: Site Evaluation Report, Sampling and Analysis Plan, Quality Assurance Project Plan -- WQFMP and Flowlink Database Upload & Management	***For applicable TMDLs listed in Appendix 2, affected Permittees shall comply with the specific requirements identified in Appendix 2 . Each Permittee shall keep records of all actions required by this Permit that are relevant to applicable TMDLs within their jurisdiction*** *. The status of the TMDL implementation shall be included as part of the annual report submitted to Ecology. Each annual report shall include a summary of relevant SWMP and Appendix 2 activities conducted in the TMDL area to address the applicable TMDL parameter(s).*
S7.C. Conducts any required monitoring and informs TMDL development -- (see S4.A above)	*For TMDLs that are approved by EPA after this Permit is issued, Ecology may establish TMDL related permit requirements through future permit modification if Ecology determines implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and shall be implemented during the term of this Permit or when this Permit is reissued.* ***Permittees are encouraged to participate in development of TMDLs within their jurisdiction and to begin implementation.***
S8 - Monitoring and Assessment	
Conducts any required monitoring -- (see S4.A above)	Regional Stormwater Monitoring Program (RSMP) - **NOTE: Pay in option selected by Council November 6, 2013, in lieu of meeting this requirement through in-house monitoring.**
S9 - Reporting Requirements	
S9.A Reports on required monitoring or studies -- Data Analysis and Reporting	*No later than March 31 of each year beginning in 2015, each Permittee shall submit an annual report.*
G9 - Monitoring	
G9.A. - Representative Sampling -- Final Monitoring Plan Review & Update: Site Evaluation Report, Sampling and Analysis Plan, Quality Assurance Project Plan	*Samples and measurements taken to meet the requirements of this Permit shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.*
G9.B. - Records Retention -- WQFMP and Flowlink Database Upload & Management -- Field Operations Manual - SOP Updates -- Equipment Inventory/Maintenance	*The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this permit...*